

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claim 17 without prejudice or disclaimer, AMEND claims 1, 3, 6, 7 and 18, and ADD claims 26-34 in accordance with the following:

1. (CURRENTLY AMENDED) An optical recording method for an optical disc, comprising:
producing a main beam and a sub beam such that the main beam is synchronized with the sub-beam;
forming a main light spot on the optical disc by projecting the main beam on the optical disc;
forming a secondary light spot on the optical disc by projecting the sub beam onto the optical disc at a predetermined distance ahead of the main light spot in a track direction along which the optical disc rotates;
recording a new mark and erasing an existing mark using the main light spot; and
supporting erasing of the existing mark using the secondary light spot during mark recording and/or erasing.

2. (ORIGINAL) The optical recording method as recited in claim 1, wherein an optical erasing power of the main beam, P_{me} , and an optical erasing power of the sub beam, P_{se} , satisfy:

$$P_{me} \leq P_{se}.$$

3. (CURRENTLY AMENDED) An optical recording method for an optical disc,
comprising:
producing a main beam and a sub beam;
forming a main light spot on the optical disc by projecting the main beam on the optical
disc;
forming a secondary light spot on the optical disc by projecting the sub beam onto the
optical disc at a predetermined distance ahead of the main light spot in a track direction along

which the optical disc rotates;

recording a new mark and erasing an existing mark using the main light spot; and
supporting erasing of the existing mark using the secondary light spot during mark
recording and/or erasing~~The optical recording method as recited in claim 2,~~

wherein:

an optical erasing power of the main beam, P_{me} , and an optical erasing power of
the sub beam, P_{se} , satisfy: $P_{me} \leq P_{se}$, and

the optical erasing power of the main beam, P_{me} , is an invariable power comprising a predetermined magnitude, and the optical erasing power of the sub beam, P_{se} , is pulse-formed power.

4. (ORIGINAL) The optical recording method as recited in claim 1, wherein the main light spot and the secondary light spot projected on the optical disc are sufficiently separated from each other where the secondary light spot does not affect an area to be recorded on by the main light spot while erasing the existing mark.

5. (ORIGINAL) The optical recording method as recited in claim 4, wherein the predetermined distance between the main light spot and the secondary light spot on the optical disc is greater than a length of a minimum recording mark.

6. (CURRENTLY AMENDED) An optical recording method for an optical disc, comprising:

forming a main light spot on the optical disc by projecting a main beam on the optical disc;

forming a secondary light spot on the optical disc by projecting a sub beam onto the optical disc at a predetermined distance ahead of the main light spot in a track direction along which the optical disc rotates, the sub beam being synchronized with the main beam;

supporting erasing of an existing mark using the secondary light spot during mark recording and/or erasing by partially erasing the existing mark while emitted at the predetermined distance ahead of the main light spot;

completely erasing the existing mark partially erased by the secondary light spot using the main light spot; and

recording a new mark using the main light spot at a position of the erased mark.

7. (CURRENTLY AMENDED) An optical recording apparatus, comprising:

a light source unit emitting a main beam to form a main light spot on an optical disc and emitting a sub beam to form a secondary light spot on the optical disc at a predetermined distance ahead of the main light spot in a track direction along which the optical disc rotates, the sub beam being synchronized with the main beam; and

an objective lens focusing the main beam and the sub beam on a recording surface of the optical disc,

wherein the secondary light spot partially erases an existing mark and the main light spot completely erases the existing mark and records a new mark at a position of the erased mark during mark recording and/or erasing.

8. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein

the secondary light spot supports the erasing of the existing mark by partially erasing the existing mark while emitted at the predetermined distance ahead of the main light spot in the track direction along which the optical disc rotates during a recording signal period, and

the main light spot completely erases the existing mark partially erased by the secondary light spot during the recording signal period.

9. (ORIGINAL) The optical recording apparatus as recited in claim 8, wherein the secondary light spot is formed by branching pulse-type light output from the light source unit during the recording signal period, where the secondary light spot comprises a pulse form comprising a same variation as the recording signal.

10. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein the light source unit comprises:

a light source producing and emitting light; and

an optical branching device branching the light emitted from the light source into the main beam and the sub beam.

11. (ORIGINAL) The optical recording apparatus as recited in claim 10, wherein an optical erasing power of the main beam, P_{me} , and an optical erasing power of the sub beam, P_{se} , satisfy:

$$P_{me} \leq P_{se}.$$

12. (ORIGINAL) The optical recording apparatus as recited in claim 11, wherein the optical erasing power of the main beam, P_{me} , is an invariable power comprising a predetermined magnitude, and the optical erasing power of the sub beam, P_{se} , is pulse-formed power.

13. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein the light source outputs light comprising power that satisfies:

$$P_t = (P_m + P_s)/\alpha, 0 \leq \alpha \leq 99$$

wherein P_t comprises a total of light power output from the light source, P_m comprises the power of the main beam I, P_s comprises the power of the sub beam II, and α comprises a degradation in light efficiency caused by the branching of light into two beams.

14. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein the light source unit comprises first and second light sources positioned in the track direction of the optical disc and emitting the main beam and the sub beam, respectively.

15. (ORIGINAL) The optical recording apparatus as recited in claim 14, wherein the first and second light sources operate in synchronization with each other and output light power comprising a same form but different magnitudes.

16. (ORIGINAL) The optical recording apparatus as recited in claim 15, wherein the secondary light spot partially erases the existing mark while emitted at the predetermined distance ahead of the main light spot in the track direction along which the optical disc rotates during a recording signal period, and

the main light spot completely erases the existing mark partially erased by the secondary light spot during the recording signal period.

17 (CANCELED)

18. (CURRENTLY AMENDED) An optical recording apparatus, comprising:
a light source unit emitting a main beam to form a main light spot on an optical disc and
emitting a sub beam to form a secondary light spot on the optical disc at a predetermined
distance ahead of the main light spot in a track direction along which the optical disc rotates; and

an objective lens focusing the main beam and the sub beam on a recording surface of the optical disc,

wherein:

the secondary light spot partially erases an existing mark and the main light spot completely erases the existing mark and records a new mark at a position of the erased mark during mark recording and/or erasing,

the first and second light sources operate independently,

the first light source outputs pulse-formed recording light power and the second light source outputs DC erasing light power. The optical recording apparatus as recited in claim 17,

wherein the secondary light spot comprises the DC erasing light power from the second light source and partially erases the existing mark, and

the main light spot comprises the DC erasing light power from the first light source and completely erases the existing mark partially erased by the secondary light spot, providing sufficient erasing ratio.

19. (ORIGINAL) The optical recording apparatus as recited in claim 14, wherein an optical erasing power of the main beam, P_{me} , and an optical erasing power of the sub beam, P_{se} , satisfy:

$$P_{me} \leq P_{se}.$$

20. (ORIGINAL) The optical recording apparatus as recited in claim 19, wherein the optical erasing power of the main beam, P_{me} , is an invariable power comprising a predetermined magnitude, and the optical erasing power of the sub beam, P_{se} , is pulse-formed power.

21. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein an optical erasing power of the main beam, P_{me} , and an optical erasing power of the sub beam, P_{se} , satisfy:

$$P_{me} \leq P_{se}.$$

22. (ORIGINAL) The optical recording apparatus as recited in claim 21, wherein the optical erasing power of the main beam, P_{me} , is an invariable power comprising a predetermined magnitude, and the optical erasing power of the sub beam, P_{se} , is pulse-formed

power.

23. (ORIGINAL) The optical recording apparatus as recited in claim 22, wherein the predetermined magnitude of the invariable power is 2.2mW to 2.4mW.

24. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein the main light spot and the secondary light spot projected on the optical disc are sufficiently separated from each other where the secondary light spot does not affect an area to be recorded on by the main light spot while erasing the existing mark.

25. (ORIGINAL) The optical recording apparatus as recited in claim 7, wherein the predetermined distance between the main light spot and the secondary light spot on the optical disc is greater than a length of a minimum recording mark.

26. (NEW) The optical recording apparatus as recited in claim 9, wherein the light source unit further comprises a light source to emit a light beam and an optical element which receives the emitted light beam and divides the received emitted light beam into the main beam and the sub beam.

27. (NEW) The optical recording apparatus as recited in claim 26, wherein the optical element diffracts the emitting light beam to provide the main beam and the sub beam.

28. (NEW) The optical recording apparatus as recited in claim 26, wherein the optical element comprises a diffraction grating.

29. (NEW) The optical recording apparatus as recited in claim 26, wherein the optical element comprises a holographic element.

30. (NEW) The optical recording apparatus as recited in claim 10, wherein the optical branching device is disposed in an optical path between the light source and the objective lens so as to branch the light emitted from the light source into the main beam and the sub beam.

31. (NEW) The optical recording apparatus as recited in claim 30, wherein the optical branching device diffracts the emitting light beam to provide the main beam and the sub beam.

32. (NEW) The optical recording apparatus as recited in claim 10, wherein the optical branching device comprises a diffraction grating.

33. (NEW) The optical recording apparatus as recited in claim 10, wherein the optical branching device comprises a holographic element.

34. (NEW) The optical recording apparatus as recited in claim 15, wherein the output light power of the first and second light sources have a same pulse duration.